Supplemental Information Requested by EPA Regarding Hunters Point

26 March 2019

Prepared by
Committee to Bridge the Gap

The following is supplemental information to address questions raised by the U.S. EPA in a meeting with Committee to Bridge the Gap on February 15, 2019.

1. Has the Navy identified which burrowing mammals may be present at HPS?

In our presentation to you, slides 88 through 94 concerned the threat burrowing animals pose to the integrity of the 2 (or in some cases, 3) foot soil cover. We presented you with tables of burrowing mammals and ants known to exist in the SF Bay Area and their burrowing depths. (For your convenience, we have attached those here as Tables 1 and 2, with the references for each line added.) You asked if we had seen Navy documentation identifying burrowing mammals present at Hunters Point.

Navy documents contain numerous references to burrowing mammals at HPS. For instance, from the *Basewide Environmental Baseline Survey* (1998): "The onshore habitat at HPA supports numerous burrows, apparently dug by small mammals" (pg. 4-14). The *Phase 1A Ecological Risk Assessment Volume 3, Task 6 Summary Report* (1994) states: "Evidence of a burrowing animal, probably a mammal, has been seen in nearly every portion of Parcel E" (pdf p. 86).

While the Navy does not appear to have conducted a comprehensive survey of all the burrowing mammals at HPS [previously called Hunters Point Annex or HPA], it is aware that organisms found at HPS can cause contamination to migrate within and beyond the soil, as evidenced in the *Phase 1A Ecological Risk Assessment Volume 3, Task 5 Summary Report* (1994): "Many organisms present at HPA either feed on decaying organic material in soil or burrow through soil. This pathway represents the entrance of soil contamination into the terrestrial food web as organisms such as earthworms, Botta's pocket gopher (*Thomomys bottae*), and California meadow vole (*Microtus californicus*) burrow through the soil. When these organisms are preyed upon, they possibly pass these contaminants up the food chain" (pdf p. 75).

Various specific species of burrowing mammals have been identified at HPS, such as the Botta's pocket gophers *(Thomomys bottae)* referenced in the above paragraph. Botta's pocket gophers have also been identified at Parcel A [see page 14 of *Screening-Level Ecological Risk Assessment for Parcel A* (1994)]. Several species of burrowing mammals present near HPS are identified in the 2009 *Candlestick Point/Hunters Point Shipyard Project Biological Resources Technical Report*, which states on page 24 that the "most abundant mammal observed during the Yosemite Slough Watershed Wildlife Survey was the California ground squirrel *(Spermophilus beecheyi)*," and that "[o]ther mammals observed during the survey included ... Botta's pocket gopher *(Thomomys bottae)*, California vole *(Microtus californicus)*, and Norway rat *(Rattus norvegicus)*."[1] Finally, the California ground squirrel has been identified at Parcel B, as documented in the *Parcel B Amended ROD* (2009; pg. 5-1).

It is important to note that Parcel B contains IR 07/18, an area at HPS known to contain radioactive contamination that was covered in 2011 with 2-3 feet of soil. The U.S. Department of Energy determined in 1982 that the California ground squirrel burrows to depths over 5.5 feet.

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[1] The Yosemite Slough Watershed is adjacent to and includes part of HPS; see p. 4, of the Biological Resources Technical Report, *supra.*

The Navy has documented several instances of animals burrowing into soil covers at HPS, for example at IR-07/18, in 2013 (pg. 36-37), 2014 (pg. 2-1, 2-2, and PDF pg. 25), and 2019 (pg. E-2 and E-8, photo 6).[2] At no point in these documents does the Navy give an indication as to what species of animal might be producing these holes. Note that the Navy's repair process consists of filling the hole with soil and reseeding the area, leaving in place any contamination that has migrated upward via burrowers.

We have been unable to find evidence that the Navy is monitoring for evidence of ant burrowing. As our presentation to you hopefully made clear, ants also burrow deeply, bringing material up to the surface, and pose a threat similar to mammals to the protectiveness of a cover.

2. Which produce were the risk-drivers in the PRG calculations?

On slide 96 of our presentation to you, we explained that turning off the lower-risk vegetables in the PRG Calculator has very little effect on the PRGs. This demonstrates that someone growing and eating even just a fraction of the produce items included in the PRG Calculator could nonetheless be exposed to significant levels of risk if they are growing the higher-risk items. You asked which produce items are those of high risk, and how we arrived at that conclusion.

To determine which produce has the highest risk, one runs the PRG Calculator one radionuclide at a time, with the option "Show Individual Produce Output" selected. We did this for Pu-239, Sr-90, and Ra-226. This generates a list of PRGs for individual produce items for each radionuclide. One can then sort these produce items and their associated PRGs from lowest to highest, and then run the PRG calculator for just the higher risk produce items. We ran the calculator first with the defaults of all the produce. Then we ran it with all fruit trees removed. There was very little effect. We finally ran it with all fruit trees removed and half of all produce, the lower risk items, removed, for each radionuclide. Again, there was little effect on the resulting PRGs. The risk is driven by a subset of the default produce; eliminating most of the produce, the lower-risk items, changes the PRGs little.

- For plutonium-239, the following are the risk-driving produce items, according to the PRG calculator: cabbage, lettuce, asparagus, tomatoes, potatoes, beets, cucumbers, carrots, and snap beans. Running the calculator with these as the only produce inputs generates a Total PRG of 9.15E-3 pCi/g, a relatively negligible loosening from the PRG of 7.56E-3 pCi/g with all the produce but the fruit trees included.

- For strontium-90, the following are the risk-driving produce items: snap beans, cabbage, peas, lima beans, asparagus, cucumber, tomatoes, lettuce, and pumpkins. Running the calculator with these as the only produce inputs generates a Total PRG of 4.82E-3 pCi/g, a relatively negligible loosening from the PRG of 3.70E-3 pCi/g with all the produce but the fruit trees included.

[2] In that 2019 document, the Navy claims to have observed "no holes extending through the soil cover," without explaining how they were able to make observations two feet below the ground.

- For radium-226, the following are the risk-driving produce items: cabbage, lettuce, asparagus, tomatoes, cucumbers, beets, potatoes, pumpkins, snap beans, and carrots. Running the calculator with these as the only produce inputs generates a Total PRG of 2.44E-3 pCi/g, a relatively negligible loosening from the PRG of 2.20E-3 pCi/g with all the produce but the fruit trees on.[3]

An important note: as discussed below in the section on non-conservatisms in the PRG calculator, it does not include many items commonly grown in backyard and community gardens.

3. Non-conservatisms in the PRG Calculator

The Navy continues to say that the PRG Calculator includes conservatisms, factors that are biased conservative to make sure the cleanup is protective. This may be true, in part, but it is also true that the PRG Calculator includes a number of *non*-conservatisms, factors that are unaccounted for and thus may result in an underestimation of the actual risk at a site like HPS.

The exclusion of many commonly-grown produce items is an example of such non-conservatisms. The risk to a human receptor from ingestion of the following produce items grown in contaminated soil is not accounted for by the PRG calculator, for example: kale, spinach, melons, rhubarb, collard greens, chard, mustard greens, turnips, leeks, parsley, chives, salsify, squash, peppers, garlic, zucchini, basil, kohlrabi, cauliflower, sunflower seeds, and Brussels sprouts.

Another potential non-conservatism is the default value for resuspension of contaminated dust. The PRG calculator assumes very little inhalation and ingestion from this pathway, by assuming a stable soil surface and relatively little resuspension. The soil surface at Hunters Point, however, is far from being stable, and the amount of resuspension likely far, far higher than the default values in the PRG Calculator, considering the dirt-bike trainings held by the police stationed at Building 606, the onsite helipad, and most particularly, the excavation that is part of the cleanup and the very extensive construction activities, both recent and planned for many years into the future. All of these activities could re-suspend large amounts of contaminated soil particles and dust into the air, where it can be inhaled or ingested. Furthermore, the high level of resuspension can result in significant contaminated dirt particles being blown or tracked into buildings, making the inclusion of a dust depletion factor for building PRGs, which the Navy has argued for, wholly inappropriate. Instead, there should be a site-specific modification for the increased potential for such contamination to be continually brought into the buildings from outside.

A third non-conservatism is that using the PRG calculator's option for including a soil cover does not take into account the potential for burrowing animals, ants, roots of trees and bushes,

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[3] Running the PRG calculator with all produce on (i.e., the default condition) and then running it with all fruit trees removed similarly has very little effect. For Pu-239, the PRG goes from 6.15E-03 pCi/g with the full default suite of produce to 7.53E-03. For Sr-90, the PRG goes from 3.61E-03 for the default to 3.70E-03. And for Ra-226, the PRG goes from 1.82E-03 to 2.20E-03 when one turns off the fruit trees.

etc. bringing contamination from beneath a shallow cover to the surface. We demonstrated the implications of these phenomena during our presentation to you.

We have summarized these examples of non-conservatisms in slides found in Attachment 2.

4. How close are the Quesada Community Gardens to HPS?

On slides 74 and 75 of our presentation to you, we displayed pictures of the Quesada Community Gardens as one example of the numerous community gardens that surround HPS. You asked how close the Quesada Gardens are to Hunters Point. The Quesada Gardens are 0.9 miles from the edge of Hunters Point Shipyard. Other gardens are even closer. See Attachment 3.

5. The Erroneous Claim by the Navy of 12 Millirem/Year Dose as "EPA's Standard"

As we discussed during our meeting, the Navy's claim that EPA's standard for cleaning up Superfund sites is 12 mrem/yr is false. We call your attention to letters by EPA Region IX when similar claims were made by the U.S. Department of Energy (DOE) regarding the Santa Susana Field Laboratory (SSFL). DOE asserted that 15 mrem/yr was an acceptable cleanup limit [at that time, EPA had set anything over 15 mrem/yr as presumptively non-protective as an Applicable or Relevant and Appropriate Requirement (ARAR); it has since reduced that to 12 mrem/yr]. The 15 (now 12) mrem/yr level applies only for determining whether a state rule can qualify as an ARAR; as we said, only one state has an ARAR that qualifies, and it is not California.

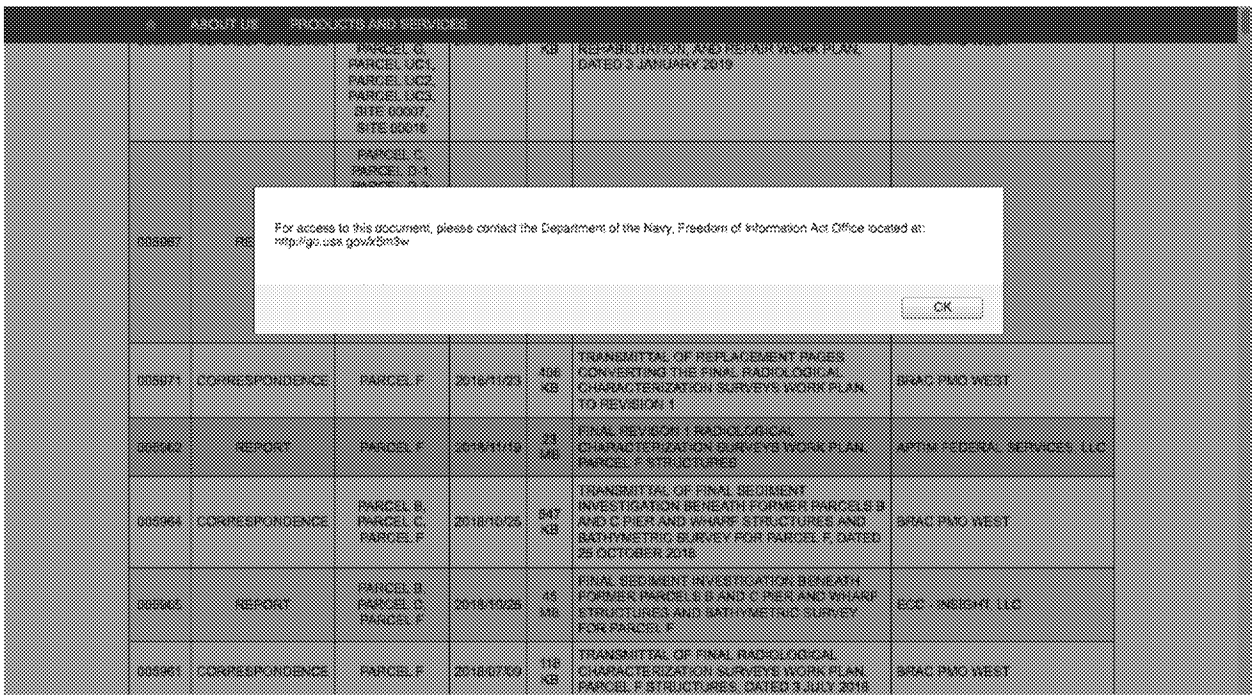
In a December 5, 2003 letter from EPA to DOE, enclosed as Attachment 4, EPA wrote, "Cleanup levels should be based on cancer risk estimated using slope factors and expressed in terms of risk (# x $10^{-\#}$). DOE uses a radiation dose (15 mrem/year) as a presumptive cleanup level, instead of cancer risk, to drive its cleanup at ETEC [DOE's portion of SSFL]. *The use of dose as a cleanup standard expressly contradicts EPA policy memoranda.*" pdf p. 9, emphasis added

Similarly, in an April 2002 letter to DOE, enclosed as Attachment 5, EPA made a similar point: "Current EPA CERCLA policy specifically states that 15 mrem/yr should not be used as a presumptive cleanup level...." pdf p. 6 The 2003 letter says "in order to be consistent with CERCLA, a cleanup must meet not just one, but a number of aspects of CERCLA and its implementing regulations.... These include basing cleanup levels on risk, not dose, and using the lower end of the risk range as the *point of departure* for decision-making." pdf p.2, emphasis added

6. BRAC Administrative Record: Access Denied to Key Documents, Many Critical Documents Missing

After our meeting, we were escorted downstairs by Yolanda Sanchez. On the way down, the subject of BRAC's Administrative Record Repository came up, in particular the issue that many of the documents listed are not actually accessible. She asked us to send more information about this.

Some of the documents listed in the Navy Administrative Record are clickable, with a download beginning immediately, but many — perhaps ⅓ — do not result in a download when clicked, but instead display the following message: "For access to this document, please contact the Department of the Navy, Freedom of Information Act Office located at: http://go.usa.gov/x5m3w." [See screen shot below.] Furthermore, the Administrative Record is incomplete, with many, many documents missing. Many of these documents contain crucial information that the public needs access to in order to make informed decisions regarding community acceptance. The requirement to submit a FOIA request and the omission of key documents present significant barriers for citizens in accessing information about their government.



7. The Navy Cleanup Levels Do Not Meet the RODs' Risk Goals and the Navy is Changing its Cleanup Levels Without Amending the RODs

The Remediation Goals (RGs) in the RODs are based on 10^{-6} risks. However, the actual cleanup levels do not correspond to those risks, and didn't at the time they were adopted. They are far, far higher.

Additionally, the Navy has been after the fact changing (further weakening) the RGs without amending the RODs. For example, the RGs in the RODs, with the exception of radium, are the actual measured value for the specified radionuclides. In the Parcel G retesting plan, however, the Navy has unilaterally changed its own RGs by adding a footnote, making the RGs no longer

the absolute value measured but the incremental amount above background. They have weakened the RGs without amending the RODs.

The RGs also appear to violate the requirements for following the sum-of-the fractions rule, instead allowing each contaminant to be at the full limit. With a witches' brew of radionuclides and toxic chemicals present at HPS, one must sum the fractions of each contaminant's allowed limit and not exceed 1.

We continue to await the Navy making available for public review and comment its PRG calculations for building and soil RGs. Based on past statements by the Navy, we anticipate it may try to alter the results by completely turning off the garden scenario, assuming a soil cover that is not degraded by burrowing animals or vegetation such as trees and bushes that bring contaminants back to the surface, and using 10^{-4} as a presumptive, automatic point of departure for cleanup standards, rather than 10^{-6}. We reiterate that all of that would be improper.

In particular, the point of departure is 10^{-6}; departing from it requires a public process in which the nine balancing and other CERCLA criteria are weighed. We note once again that the CERCLA community acceptance criterion is key. The community has spoken clearly and formally on the matter. There was a formal election in the City and County of San Francisco, in which 86% of those voting on the measure, Proposition P, voted in its favor. Prop P sets the community acceptance criteria as cleanup to the most protective EPA standards, specifying that must entail cleanup for *unrestricted* residential use, with no institutional controls and no reliance on physical barriers. The following year, the Board of Supervisors formally adopted Prop P as the official policy of the City and County of San Francisco, reiterating there should be full cleanup, with no reliance on physical barriers or restrictions.

Because of the multitude of radionuclides and toxic chemicals present, and because EPA's policy is that all must be summed, allowing individual RGs that are anywhere near 10^{-4} would push one far beyond even the upper limit of the risk range, even with institutional controls. But the community acceptance criterion, so clearly enunciated by the voters, would militate against any remedy other than 10^{-6} risk with no reliance on barriers or institutional controls. The RGs in the RODs were wrong even when adopted (e.g., use of Reg. Guide 1.86 and 1991 PRGs violate 120(a)(2) of CERCLA). They need to be fixed, i.e. markedly strengthened. Any attempt to weaken the unrestricted release risk goal of 10^{-6} on which the RGs were purportedly based in the RODs must undergo formal amendment, public review and comment, and full consideration of the community acceptance criteria evidenced by Prop P and the following year's Board of Supervisors official policy for San Francisco.

Conclusion

We recognize the substantial pressure being placed on EPA by the Navy and others to sign off on the Navy's plans, even though they conflict with EPA Superfund guidance and the mandate to protect the public and the environment. At the core of the issue is the use of remediation goals that were not accurate or consistent with EPA's CERCLA guidance even when originally adopted, and the change in the cleanup approach made a decade or so ago,

shifting from cleaning up the contamination to instead merely covering it with a couple feet of soil.

The Navy wants EPA to acquiesce to the Navy's reliance on questionable institutional controls and barriers, ignoring, among other things, the ability of burrowing animals and regular vegetation to bring contaminants back to the surface of the thin soil cover. Furthermore, the disruption to covers by the intense construction activities necessary for the development planned is also ignored.

The Navy may want to go even further—to be allowed risk goals a hundred times higher than the risk levels promised, and on top of that, to avoid cleanup obligations by declaring the property too contaminated to grow a tomato or lettuce plant in. Collectively, this could result in contamination levels left in the soil that are thousands or tens of thousands of times higher than they would be otherwise. All of this would be done without consideration of the community acceptance criterion, which in this case is expressly against restrictions and barriers, as evidenced by the overwhelming vote of the public on Proposition P and its subsequent adoption by the Board of Supervisors as official policy.

A great deal is at stake in terms of protecting the public. We hope this additional information is helpful. If there is any further information we can provide, please don't hesitate to contact us.

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